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ATOMIC ENERGY COMMISSION

PROPOSED POLICY FOR HANDLING PACKAGED RADIOACTIVE WASTES

Report to the General Manager by the Directors of Reactor Development and Licensing and Regulation

THE PROBLEM

1. To consider a proposed policy covering land disposition of packaged radioactive waste materials evolving from AEC contractor and licensee operations.

SUMMARY

2. Because the quantities of contaminated materials are increasing in proportion to the growth of the atomic energy industry, a clear-cut policy covering the final disposition of packaged radioactive waste materials is urgently required. The wastes in question are those associated with laboratory and research activities and routine reactor operations. High-level liquid wastes resulting from the chemical processing of irradiated fuels or bulk low-level liquid wastes are not included.

3. Existing technology permits the disposal of such wastes on land or in the sea in accordance with acceptable standards for radiation protection. However, these operations are hindered because of complex administrative, legal and public relations issues which are inherently involved in such operations. The major questions requiring resolution are (1) whether in view of the AEC's responsibility to protect the public health and safety against radiation hazards, the AEC should limit land disposal of radioactive wastes to it.

4. Most wastes from AEC operations are handled by land burial at AEC sites. Certain installations such as Brookhaven National Laboratory and Livermore Radiation Laboratory, because of their location, have disposed of laboratory wastes at sea. In line with the present government policy of not competing with industry, wastes from licensee operations are not generally accepted by the AEC for disposal at AEC facilities.

5. Nine commercial firms have been licensed to provide waste disposal services. Seven of these licenses have been for sea disposal while two others are for more restricted activities (temporary storage and shipment only). In the past all applications for licenses involving land burial have been rejected because of specified deficiencies in each particular case (e.g., hydrology of proposed site, etc.), although it also has been noted that applicants had not demonstrated an ability to guarantee maintenance and control of the burial sites for the extended period of time essential to public safety.

6. Land disposal, except in certain situations, appears to have definite advantages over sea disposal. The establishment of regional burial grounds for packaged wastes will provide a critically needed service. Because of the inability of entities other than government agencies to assure competent and responsible management of burial sites for the long periods of time over which the potential radioactivity hazard might extend, such operations should be permitted only on

government-owned land. While the long-term position restricting such burial grounds to government-owned should be clearly stated, it is not necessary to restrict this to land owned by the Federal Government. New York already has expressed some interest in establishing such a site and as the industry grows the interest of the States in performing this service for their citizens can be expected to increase. Under present law the AEC could license a State to dispose of the materials on State-owned land. On an interim basis, use of burial ground facilities at Oak Ridge National Laboratory and Idaho Operations Office as regional installations is recommended.

STAFF JUDGMENTS

7. The Divisions of Biology and Medicine, Finance, Production, Information Services and the Office of General Counsel concur in the recommendation of this paper.

CONCLUSIONS

8. Both sea and land disposal of packaged wastes are safe and technically feasible and the use of either method should not be precluded where it has advantages over the other.

9. The ultimate responsibility for disposition of radioactive waste materials, whether on land or at sea, should be retained by the AEC because of inherent long-term implications.

10. Land disposal of radioactive wastes has advantages in many situations and steps should be initiated now for the selection and establishment of regional burial grounds. Because of the inability of entities other than Government agencies to assure competent and responsible management of burial sites over the long periods of time over which the potential radioactivity hazard might extend, such operations should be permitted only on government-owned land. States may become interested in providing such services for their own citizens as the industry grows. Temporary sites at Ridge and NRTS should be formally established now. These sites can handle these wastes for a period of two to three years without overloading the sites. During this time surveys for additional sites must be conducted and arrangements made for the acquisition or transfer of land.

11. Sea disposal likewise has definite advantages in certain situations, but the "ultimate" Government responsibility for these waste materials does not require Government responsibility for physical operations in the same sense as with burial on land. Licensees could continue these operations with the Government exercising its regulatory responsibility through designation of areas in which material could be discharged, controlling the packaging of discharged material and providing adequate monitoring of these activities.

RECOMMENDATION

12. The General Manager recommends that the Atomic Energy Commission:

a. Approve the policy that permanent land disposal sites for packaged radioactive wastes be established on a regional basis on Government-owned land, either Federal or State.

b. Authorize the General Manager to designate Oak Ridge and Idaho as interim disposal sites pending an over-all study of requirements for additional regional facilities, and evaluation of specific sites to fulfill such requirements.

- c. Note that recommendations of the staff regarding the establishment of such additional sites will be submitted to the Commission for approval prior to action leading to transfer of land from other Government agencies or initiation of legislation required for acquisition of land together with specific recommendations regarding whether such operations should be conducted under contract with AEC, or through some other arrangement (such as leasing to licensees).
- d. Note that in accordance with past AEC practices when site selections were being made, site selection activities will be conducted with as little publicity as possible but that appropriate and useful public relations activities will be undertaken at the time of selection of sites to help assure public acceptance.
- e. Note that the Managers of operations and the Division of Finance will establish the pricing formula in connection with the operation of these burial ground facilities in accordance with existing procedures and under the applicable principles of full-cost recovery.
- f. Approve the issuance for public comment of the attached proposed amendment to Part 20.
- g. Note that the Joint Committee on Atomic Energy, General Advisory Committee and Military Liaison Committee will be advised by letter such as Appendix "C", and the public will be informed by a news release such as Appendix V.
- h. Note that this paper is unclassified.

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APPENDIX "A"

1. The need for waste disposal services for packaged radioactive wastes from AEC contractor and licensee operations is increasing. Quantities of contaminated materials that must be safely disposed of are increasing in proportion to the growth of the atomic energy industry. This is true not only for AEC operations, but also for the increasing amounts of radioactive waste materials that must be discarded by licensees especially from the growing reactor and isotope programs.
2. The low-level radioactive waste materials associated with laboratory and research activities and routine reactor operation are the ones with which this paper is concerned. They now include such things as broken glassware, paper wipes, rags, non-usable equipment, ashes, animal carcasses, laboratory paraphernalia from experiments and, in the future, are expected to include such things as fuel rod end pieces, ion exchange resins and other similarly contaminated materials associated with reactor operations. Not included as a consideration here are low-level liquid wastes that cannot be solidified and packaged. These are treated and disposed of at their points of origin under existing controls and regulations. Highly radioactive fission product wastes resulting from chemical reprocessing of irradiated fuels, which are presently evolved only at AEC installations and which are stored at the AEC sites where they are produced are likewise not included in the category of waste materials under consideration. Nationwide, the total quantities of solid or packaged waste materials requiring off-site disposal is estimated to be of the order of 150,000 cubic feet per year at the present time.
3. The larger AEC operations have made provision for waste disposal on site. These sites are Hanford, LASL, SRP, NRTS, and Oak Ridge. In general, these locations are isolated from populous areas. NRTS and Oak Ridge also receive and dispose of wastes from other AEC contractors. Other laboratories, such as Brookhaven and NRDL, because of their location, have disposed of their wastes at sea. Certain AEC installations such as KAPL, ANL, Mound Laboratory, etc., with site limitations, have shipped wastes to Oak Ridge.
4. The disposal of radioactive waste materials from AEC licensee operations is governed by AEC regulations. Applications for licenses to engage in commercial radioactive waste disposal on privately-owned land have been received. The applications have been denied basically because of the inability of applicants to assume long-term maintenance and control of the burial site. The attached proposed amendment would prohibit the Commission from approving any application for license to receive radioactive material for disposal on privately-owned land.
5. In line with the present Government policy regarding competition with industry, waste materials generated outside of AEC operations are not generally accepted by the AEC for disposal. (Oak Ridge, however, does receive material from a restricted number of licensees under special arrangements.) Based on this policy, nine licenses have been issued to commercial firms to provide waste disposal services. Seven of the above licenses have been for sea disposal (with operations conducted in accordance with standards set forth in NBS Handbook 58), while the other two are for more restricted activities preparatory to final disposal (i.e., temporary storage and shipment only).

DISCUSSION

6. Technically, the considerations are relatively straightforward for establishing either land burial sites or sea disposal sites and are similar for both. These have to do with selecting a site which is suited to receive the radioactive materials without adversely affecting the public health, safety and welfare, and with due consideration to the economic factors

involved. Criteria for selecting and operating a land burial facility are set forth in Appendix "B". Site factors such as geology, surface and ground water hydrology, and meteorology, etc., would require detailed investigation and would dictate the choice of site, whether on land or at sea.

7. The technical feasibility of carrying out land burial and sea disposal operations in a safe and adequate manner has been demonstrated and selection of either method should be based primarily on economics. Land economics is affected by the geographical distribution of waste producers and regional burial areas will be required, over the long term, as the needs for such facilities develop in different areas.

8. Radioactive waste from the Atomic Energy Commission's own operations is largely handled by land disposal. That a decision on such handling of commercially generated wastes eventually would be required has long been recognized. Criteria for conducting such operations have been developed (Appendix "B") and development programs to improve ways and means of handling, concentrating or diluting and packaging wastes have been a continuing and rapidly expanding part of the AEC program.

9. With the major consideration being protection of the public health and safety, however, there has been a continuing concern as to how the AEC can assure protection of the public health and safety under conditions involving commercial ownership and operation of land burial sites. Some of the materials will be radioactive for hundreds of years -- much longer than the life of individuals (licensees) or of most companies and corporations. The question of how private concerns can demonstrate satisfactorily their ability to discharge this responsibility has not been answered satisfactorily. The need for long-term precautions related to the health and safety aspects of burial ground operations make it essential for the Government to limit the extent of commercial participation in such activities to a relatively short term, either as contractor or lessee to the Government.

10. Even if this were not so, practical considerations bring one to the same conclusion. If licenses for commercial disposers were to be granted on an "open market" basis, the AEC would be confronted with either an arbitrary restriction on the number of licenses granted, the possibility of an excessive number of burial grounds and/or a poor distribution of waste burial facilities and a significantly larger task of monitoring these facilities over an indefinite, but long-term in the future. If storage or burial of substantial quantities at the point of origin of these wastes were permitted, i.e., on licensee sites, the increasing number of sources of such wastes would result in an even larger number of widely scattered sources of potential environmental contamination, each of which would have to be monitored, inspected and otherwise closely administered and each of which also would involve short-term advantages of convenience and of lower initial costs to the Government would be more than offset by the more extensive environmental and administrative problems created in exercising the *health and safety* responsibility,

11. Thus, the problems of long-term responsibility for protection of the public health and safety where land burial is used, seem best solved by making such disposal possible only on Federal or State Government-owned land. Present estimates indicate that approximately 200-300 acres would adequately service a region like the 16 northeastern states, at least until 1980. This estimate is based on quantitative data obtained from land burial operations at ORNL. The area required for the burial of wastes originating outside of Oak Ridge is approximately 2-1/2 acres per year. Because of the economics of packaging, handling and transportation, It appears most desirable to establish a limited number (5 to 10) of such regional burial sites.

12. In taking the position that burial grounds should be on Government-owned and controlled land, it is not necessary or desirable at this time to limit this to land owned by the Federal Government. As noted above, New York State already

has expressed some interest in such a site. As the atomic energy industry grows, state-owned and controlled burial grounds may prove to be a desirable long-range plan. Public announcements of any policy decision should make this clear arid, as additional sites are needed, the staff should work with the appropriate at representatives with the expectation that interest of the states in participating in performing this service for their citizens will increase. To the extent that operation of such sites by AEC might be required, the extent of Government competition with industry may be tempered by the method of operation finally selected. This might be by direct Government operation, and AEC contract with a selected operator or by leasing the burial site to an acceptable licensee under controlled conditions (similar to lease arrangements for commercial enterprises in the National Parks).

13. The selection and establishment of such sites will require time and need not be done except as the quantities of waste being generated make it necessary. Of immediate concern are the 16 northeastern states In which there are presently 2512 licensees and this number is growing at a fast rate (20% more as of July 31,1959 than on May 31, 1958). The State of New York has recognized this need, has indicated a willingness to cooperate with the Commission in establishing such a site (AEC 646/64), and has even suggested certain salt deposit areas within its borders for consideration.

14. It is therefore, proposed that a policy be adopted authorizing the conduct of commercial land waste disposal activities. For the immediate future, the Idaho and Oak Ridge areas could be designated as interim sites and those offices authorized to accept such wastes from licensees for burial. Existing ICC and CAB regulations concerning shipments of such radioactive wastes are adequate to cover the material while in transit.

15. Meanwhile, investigations should be undertaken to select a burial site to serve the Northeast. As conditions warrant, additional site selection reviews would be undertaken for other parts of the country. To the extend it becomes necessary for AEC to establish such sites on Federal property, every effort would be made to locate suitable regional burial facilities on land presently owned by the Government. Procurement of private land will be considered only In the event no suitable Government-owned land can be made available. Any action to acquire such land would be submitted to the Commission for advance approval of either (a) action to designate other AEC sites as regional land burial grounds; or (b) action to obtain the transfer of land from *another Government* agency; or (c) initiation of a request for legislation to permit acquisition of private lands in the event no suitable Governmentowned land is found to serve an area requiring such a site.

16. It should be emphasized that in recommending the establishment of regional burial grounds, the staff does not propose or contemplate that these burial grounds would operate as a substitute for sea disposal. The safety of sea disposal operations is supported by the advice of experts in the marine sciences and borne out by the actual results of sea disposal operations carried out up to the present time both here and abroad. The conditions and limitations which have been observed by the Commission in its own disposal operations and which have been imposed on licensees assure that these ocean disposal activities are without hazard. Since, except for specific situations, burial on land is more economical and more convenient it can be expected that land burial generally would be used rather *than sea* disposal.

17. If this policy is approved, it will be necessary to establish price schedules for use by Oak Ridge and Idaho for the immediate future. This can be accomplished by the Division of Finance and the Managers of Operations involved, under existing procedures regarding application of full-cost recovery principles.

18. For the longer term, and particularly where sites not used by AEC for other operations may become involved, consideration will be given both to contract operation or to leasing the site to a qualified licensee for operation, with

AEC control accomplished either through regulation or through lease provisions. (For example, the National Parks Service maintains price-controls over some commercial establishments in the National Parks through its leasing arrangements.)

APPENDIX "B"

CRITERIA FOR SELECTION AND OPERATION OF A REGIONAL WASTE-BURIAL FACILITY

I. Purpose and Scope.

A. It is the purpose of the facility to provide space and services for the shallow burial of certain types of radioactive waste as follows:

1. Low-level solids consisting of such things as contaminated rags, laboratory equipment, animal carcasses, etc., where packaging but not biological shielding is required.
2. For low-level liquids, such as result from use of isotopes in medicine, research, industrial process control, etc., where packaging but not biological shielding is required. (It is not contemplated that bulk liquids will be handled in this facility.)
3. For intermediate-level solids, such as contaminated ion exchange resins, evaporator concentrates, end pieces of fuel rods, irradiated test materials, etc., where both packaging and biological shielding are required.

B. The containment of activity within the burial site is to depend primarily on the natural environment and generally not on manufactured containers.

C. It will be necessary to select a natural environment and provide site operation such that existing standards for protection against radiation will be met.

II - Mechanisms by which Radioactivity Might Migrate Off-Site.

A. Natural mechanisms

1. Subsurface flow of water with activity in solution and/or (rarely) suspension. Transport by subsurface flow of water may be totally or partially counterbalanced by sorption systems such as ion exchange on earth materials through which the water is moving.
2. Overland flow of water with activity in solution and/or suspension. Transport by surface water may be totally or partially counterbalanced by sorption systems such as Ion exchange on earth materials over which water is moving.
3. Transport and diffusion in the atmosphere. Such transport will depend on nature of waste materials and their handling and packaging. Generally speaking, atmospheric transport can be kept as low as is necessary by proper packaging and handling.

4. Assimilation in natural life processes of animals and plants. This would be controlled to the maximum extent possible by operational practices.

5. Molecular diffusivity of activity. This probably is negligible because rate of movement is extremely slow.

B. Artificial mechanisms

1. Operational accidents - activity attached to operating personnel and equipment moving in and out of containment area.

2. Fire and/or explosions.

III. Criteria for Site Selection.

(Note: The following criteria are intended to apply to a humid climate, in particular to the northeastern part of the U.S., where, at the present time, the need is greatest for a regional burial facility. They would have to be modified in order to apply to other climatic or physiographic regions. For example, in the arid and southwest, the hydrologic criteria would have to take into account interior drainage, very low water tables, etc. In addition, the criteria are not intended to apply to abandoned coal mines, eaves, and similar structures which generally are not usable for this purpose because of adverse drainage, difficulty of access, or other conditions. Salt mines, however, are a special case and each such possibility should be considered on its merits.)

A. Geologic environment

1. Bedrock should be predominantly shaly, the thicker the better and the softer the better.

2. Unconsolidated overburden should be clay, or clay-rich material, preferably at least 20 feet thick. Weathered shale bedrock may be considered as part of the overburden if it can be excavated with power shovel or other similar equipment.

B. Hydrologic environment

1. Ground Water

a. It is desirable to locate the site in an area where potable ground water is not available or is scarce.

b. Ground water at the site preferably should be hydraulically isolated from ground water in surrounding terrain, i.e., ground water should drain into a nearby stream or streams before moving off-site. Other locations might be acceptable if ground water motion is slow enough to preclude the contamination of off-site well supplies.

c. The seasonal minimum depth to the water table at the site should be about 10 feet below land surface. It is recognized that a clay-rich overburden often goes with a high water table. However, it may be possible to get both clay overburden and reasonably low water table under favorable topographic conditions, i.e., where site is drained by nearby streams flowing 20 or more feet below average land surface elevation of the site. (Note: A shallow water table, while

undesirable from an operational point of view would not in itself rule out a site from consideration. However, the water table should never be so shallow as to cause swamp conditions, or to be within reach of shallow-rooted vegetation.)

2. Surface Water

- a. There should be few, if any, on-site places where surface drainage could accumulate. If such places exist, they should not be used for burial.
- b. Streams draining the site should not be Intensively used for water supplies, stock watering, swimming, fishing, etc., within a reasonable distance from the burial ground. The intent In site selection is to choose a site such that off-site leakage of radioactivity shall not exceed specified health and safety limits; however, success of a given site in providing the necessary confinement is a thing that may be reasonably expected but which cannot be categorically guaranteed in advance of actual use. Hence, if downstream water utilization is low, an additional safety factor Is provided.

C. Topography

1. Most of the area should be relatively flat or gently rolling.
2. Erosion and/or gulying should be negligible or controllable.

D. Accessibility

1. Site should be reasonably accessible by rail and motor transport and, if possible, by water transport.

E. Population density

1. Low Population densities, especially in downstream and downwind directions are desirable.

F. Climate

1. For year round accessibility and ease of operation, mild climate and moderate rainfall are preferred.

G. Property Value

1. Land of marginal or low value is preferred.
2. Site should be so located or sufficiently large to prevent its depressing the value of peripheral privately-owned land.

H. Area

1. It is estimated that a minimum of about 150 acres is required for 20 years operation, with provision for expansion as necessary. In the event the site is surrounded by private land, a buffer zone may be required.

IV. Site Operation

A. Physical Requirements

1. The provision of one building equipped with facilities for an office for record keeping, locker room and perhaps maintenance of mechanical equipment appears almost mandatory. A second structure for temporary storage of wastes prior to burial may be desirable.
2. A concrete unloading platform accessible to rail transportation may be desirable for receiving waste containers. Equipment should be available for platform and vehicle decontamination.
3. The burial ground site should be enclosed by appropriate anti-personnel anti-animal fencing.
4. Adequate signs warning of the presence of radioactive materials should be posted at conspicuous locations.

B. Mechanical Requirements

1. Equipment typical of sanitary landfill operations appear to be required; the exact type and extent of equipment would be determined by site conditions.
 - a. A caterpillar bulldozer, dragline or similar equipment, a 2-1/2 ton truck, and a fork lift appear essential for initial operation.
 - b. A crane may be required for unloading large rail (or barge) shipments. (This may be rented as the need arises).

C. Burial Methods

1. The entire burial procedure could follow generally accepted sanitary landfill practice. This includes trenching, backfilling, etc.
2. Trench or excavation details (length, depth etc.) would vary with site characteristics. The type of waste and radiation level would generally determine the depth of cover.
3. Some consideration may be given to waste segregation, i.e., one area for low-level beta-gamma wastes, another for alpha wastes. The provision of a separate area for reclaiming items after suitable periods of decay time may be desirable.
4. For erosion control, it may be desirable to sod or plant other shallow rooted vegetation on all filled trenches after natural subsidence of the backfilled area.

1). Packaging Requirements

1. Packaging for transport should conform with applicable federal or state regulations governing shipment of radioactive substances interstate and/or intrastate.

2. Materials should be shipped in disposable containers. Special arrangements may be made for use of returnable containers or shields where circumstances warrant.

E. Monitoring Procedures

1. The entire operation would be conducted in accordance with AEC and applicable State health and safety regulations.
2. Radiation survey instruments and personnel monitoring equipment will be required to Insure safe operation of the facility. The equipment should be kept in good repair. Standby equipment may be required.
3. Protective clothing and other radiation safety devices should be available as required.
4. An area monitoring program, including peripheral wells for detection of potential ground water contamination, and periodic sampling of the surrounding streams, Soil, vegetation, etc. shall be required. The extent of monitoring requirements will vary from site to site and will depend on site characteristics and location. Both program and data should be examined critically from time to time - possibly by an independent advisory committee.
5. Each waste shipment should be accompanied by a detailed packing list which would describe the type, estimated amount and activity of material being shipped, Volume, weight, method of packing, and unshielded radiation reading.
6. Accurate records of all items buried should be maintained. Establishment of a permanent grid system to provide a record of specific burial location for disposed materials may be helpful.

APPENDIX "C"

DRAFT LETTER TO JOINT COMMITTEE ON ATOMIC ENERGY, GENERAL ADVISORY COMMITTEE AND MILITARY LIASON COMMITTEE

1. This is to Inform you that the Atomic Energy Commission has approved a policy providing for the establishment on government, owned land of permanent regional disposal sites for solid packaged radioactive wastes from AEC licensed isotope users and from AEC contractors exceeding the limits established in 10 CFR 20. In taking this position the Commission is not, at this time, drawing a distinction between the Federal and State governments and expects that as the Industry develops, the states will become more and more interested in providing these services for its citizens. However, in keeping with its responsibility for assuring the continued protection of the health and safety of the public, It is believed these facilities should be provided under government ownership and control since we have not been able to satisfactorily answer many questions regarding the responsibility for long-term aspects of such operations conducted on privately owned land.
2. The AEC plans to carry out the necessary investigations for the selection of sites which will be suitable for safe operation. In addition the AEC, will establish the necessary monitoring procedures to assure that operations are carried out without adversely affecting the public health and safety.
3. In the interim period, until requirements for additional facilities are established and specific site evaluations made, AEC plans to utilize the existing burial facilities at ORNL and at Idaho to fulfill present needs.
4. To the extent that establishment of additional sites by the Federal Government proves necessary, every effort will be made to make use of existing government-owned land. However, the primary objective is the continued protection of the health and safety of the public and it might be necessary, at some later date, to request legislation authorizing acquisition of private land where suitable government-owned land does not exist or cannot be made available.
5. The-pricing structure to be adopted by AEC in connection with recovering costs associated with providing this service to private organizations or Individuals during the interim period will be in accordance with existing policies of full cost recovery.
6. A copy of the announcement to the public is enclosed.
7. In connection with the policy, the Commission is proposing an appropriate amendment of its regulations on standards for protection against radiation (Part 20). Under the existing Part 20. commission licensees may dispose of very low concentrations of radioactive waste by burial in the soil. Under the proposed amendment, licensees could continue this practice for their own wastes but the Commission would not approve an application for license to receive waste material from other persons far disposal on land not owned by the Federal or State governments. The proposed amendment will be published in the Federal Register on _____. Interested persons may Submit written comment within 30 days after that date.

APPENDIX "D"

NEWS RELEASE

ABC FORMULATES POLICY FOR LAND DISPOSAL OF RADIOACTIVE WASTES; GOVERNMENT-CONTROLLED SITES TO BE ESTABLISHED AS NEEDED

1. The Atomic Energy Commission has determined that regional disposal sites for permanent disposal of low-level packaged radioactive waste materials shall be established, as needed, on state or Federal Government-owned land.
2. Placement of the waste materials in Government-owned lands under long-term Government control, will assure adequate protection of the public health and safety throughout the period of any potential hazard.
3. Preliminary to the selection of regional sites, the Commission would conduct detailed studies of the geologic, hydrologic and topographic factors in connection with any proposed site in order to ascertain that a proposed site would retain the buried materials without contamination of the environment. Once a site is put into use, monitoring procedures will be established to insure that the operations are performed in a manner which will not endanger the surrounding area.
4. The Commission does not contemplate that the ownership and control of the sites must necessarily be restricted to the Federal Government. As the atomic energy industry grows and the need for new sites is established, the Commission anticipates that state Governments may wish to assume some responsibility in the establishment and control of sites for the benefit of their citizens.
5. The publicly-owned disposal installations would be operated by Federal or state Government or by contractors or licensees under strict Government controls and would be available to all firms engaged in the disposal of radioactive waste materials. Currently most non-Commission program waste material is disposed of at sea by commercial firms operating under Commission license and control. Such activities would be affected by the Commission's land disposal policy only if convenience or economic factors induce disposal firms to use land burial facilities in preference to sea disposal sites.
6. Land requirements for disposal sites will not be large, as evidenced by the fact that over the last 15 Years low-level solid or packaged wastes at Oak Ridge have been safely handled in approximately 60 acres. On the basis of this experience It is estimated that all such wastes generated between now and 1980 in the 16 states in the Northeast area, for example, could be safely disposed of in a 200 to 300 acre site.
7. Long-range estimates of the need for waste disposal facilities, arising out of the growth of the atomic energy industry, indicate that the establishment of the land disposal facilities will be required from time to time to Insure continued maximum protection of the public health and safety.
8. It is expected that the first regional site will be needed in the northeastern part of the Country where there is a relatively heavy and growing concentration of industrial, medical, university and other uses of radioisotopes. The needs of other regions will be met later on as they develop.

9. Until regional state or Federal government-owned sites are established, the Commission's Oak Ridge National Laboratory site in Tennessee and the National Reactor Testing Station site in Idaho will receive low-level wastes from non-Commission users of radioactive materials. Heretofore Oak Ridge has been used on a limited scale for the disposal of commercial wastes.

10. The types of low-level wastes to which the Commission's policy applies include broken glassware, paper wipes, rags, ashes, animal carcasses, laboratory paraphernalia and such other similar things which can no longer be used in experiments. Low-level liquid wastes are treated and disposed of at their points of origin under existing Government controls and regulations. High level wastes resulting from the chemical processing of irradiated fuels removed from reactors will continue to be stored in the specially designed underground storage tanks at the Commission's Idaho, Hanford, Washington, and Savannah River, South Carolina, sites where these fuel elements are processed.

11. A pricing schedule for use of the land burial facilities by commercially licensed companies is being established by the Commission. When the schedule is completed it will be published along with instructions detailing the procedures to be followed in disposal of wastes at approved sites.

12. In connection with the policy announced today, the Commission is proposing an appropriate amendment of its regulation on standards for protection against radiation (Part 20). Under the existing Part 20, Commission licensees may dispose of very low concentrations of radioactive waste by burial in the soil. Under the existing Part 20, Commission licensees may dispose of very low concentrations of radioactive waste by burial in the soil. Under the proposed amendment, licensees could continue this practice for their own wastes, but the Commission would not approve an application for license to receive waste material from other persons for disposal on land not owned by the Federal or State governments. The proposed amendment will be published in the Federal Register on _____. Interested persons may submit written comment within 30 days after that date.

TITLE 10 -- ATOMIC ENERGY
CHAPTER 1--ATOMIC ENERGY COMMISSION
PART 20--STANDARDS FOR PROTECTION AGAINST RADIATION

The following amendment Is designed to prohibit issuances of licenses which would authorize the disposal of radioactive waste materials on privately owned sites by persons engaged in commercial radioactive waste disposal activities.

Notice is hereby given that adoption of the following amendment Is under consideration. All interested persons who desire to submit written comments and suggestions relating to the following amendment should send them to the U.S. Atomic Energy Commission, Washington 25, D.C., Attention: Director, Division of Licensing and Regulation, within 30 days after publication of this notice in Federal Register.

Section 20-304 is amended by adding the following at the end of the section:

The Commission will not approve any application for license to receive licensed material from persons for disposal on land not owned by the Federal or State governments.